Chapter 1--The Classification System: Introduction and Usage Guide

For several years, policymakers, researchers, and educators have felt a growing need for a system that would categorize and classify all the courses taught throughout the nation's elementary and secondary schools. Some desire such a system to use in transcript studies, answering questions such as: What courses do American students take? Does their choice differ by economic condition, by geographic location, or by racial and ethnic characteristics? Related to this interest in the differences and similarities in the education of various types of students is the desire to gather information about the courses offered within the nation's classrooms. Knowing what courses students take would enable education researchers to study the relationship between test scores and coursetaking in the United States and to make broad comparisons between U.S. students' education and that of students in other countries. In addition, this information would also shed light on issues such as: How many of the math courses that schools offer include advanced mathematics concepts? When and what do American students learn about world and national geography? What type of applied activities do students experience in their vocational courses?

More recently, a number of education agencies and organizations have called for the use of technology to maintain data on students and education-related factors. For example, under contract to the National Center for Education Statistics (NCES)(1), the Council of Chief State School Officers (CCSSO) has developed a *Student Data Handbook: Elementary, Secondary and Early Childhood Education(2)* and a *Staff Data Handbook: Elementary, Secondary and Early Childhood Education(3)*. These Handbooks contain an extensive and comprehensive description of data element terms, descriptions, and definitions for elementary, secondary, and early childhood level students and staff members. Because data collected according to the handbooks' classifications will be based on common definitions and will be gathered in a similar format, researchers will be able to compare statistics and information across all states as well as aggregated to the national level.

In another NCES project, a consortium of state and local education agencies has developed a system that will enable education agencies to electronically transmit school records of students who move and transfer among school districts and to postsecondary institutions. The project, Standardization of Postsecondary Education Electronic Data Exchange/Exchange of Permanent Records Electronically for Students and Schools (SPEEDE/ExPRESS)(4), provides a mechanism to exchange with other education entities a student's academic progress, special program participation, performance, and other records. One component presently missing from SPEEDE/ExPRESS is a common course system that classifies all academic and vocational courses that elementary and secondary school students take.

Project Purpose

NCES has invested in a multi-year project to develop such a standard national course classification system for elementary and secondary education. Ideally, this system would facilitate communication (electronic and otherwise) between education agencies; enable questions of national, state, and local education interest to be answered in greater detail; and provide a common methodology for researchers performing transcript studies. The intention would be that the system stand apart from, but not replace, states' and districts' existing classification systems.

This report, which includes a proposed classification system and course descriptions based primarily on extensive review and site visits to several state and local school systems (see Appendix B), is the culmination of the first phase of the NCES effort. The pilot project had a number of goals:

1) To determine the feasibility of a national course classification system;

2) To produce a system for classifying secondary school courses that would be proposed to a larger audience;
3) To demonstrate how this system could be used by states to map their secondary education courses into the system, and thus improve comparability with other states through using a single unified classification structure;
4) To consider the extent to which data could be appropriately and flexibly used by those with different purposes;
5) To identify problems in carrying out a full-fledged classification system; and
6) To make recommendations for next steps.

Methodology

There were two general concepts that guided the focus of the study. First, the educational material to be classified and described, as represented by courses within schools, was limited to secondary education. In the states chosen to be project participants, secondary education usually encompassed the 9th through 12th grades. Although a few districts offered high school credit (or dual high school and college credit) for courses taken at a college or through correspondence work, the classification system does not include college and correspondence courses. However, in some states, for example, the Colorado Community College and Occupational Education System, there is an exception to this general exclusion of college-level courses. This is because in Colorado, secondary students enroll in these courses as part of their secondary vocational education.

The second concept during the pilot phase of the project involved the number of states selected to participate in the study. In a previous project undertaken by the CCSSO, state education agencies in all 50 states were asked to send state course lists, course descriptions, coding systems, and textbook lists for their secondary school system. Approximately 35 states responded to the request; however, because this type of state data was frequently not available, several of the respondents substituted the state-level data with information from their largest or most representative school districts. Information that CCSSO received was inspected and seven states were chosen based on the following criteria to participate in the project:

1) Specificity of the course descriptions;
2) Size of the student population in states;
3) Centralization of curriculum within states;
4) Centralization of data collection by states;
5) Recent curricular innovation within states; and
6) Inclusion of a variety of delivery systems across states.

After reviewing the material obtained from the 35 states, five states were chosen to use for developing a classification system: Maryland, Texas, Colorado, Nevada, and Florida (*base states*). Two additional states were selected to test the proposed system: Virginia and South Dakota (*test states*). The process of state selection and the role each state fulfilled in this course classification is outlined in Appendix B. Appendix B also provides a list of the education agencies who participated in the development of the classification system.

The Role of State Participants in System Development

In the beginning of the project, study staff focused on eight subject areas: the four major academic subject areas (English/language arts, mathematics, science, and social studies); the three vocational subject areas seeming to have the largest enrollments and the widest variety in course or program organization and

delivery (business/office occupations, vocational and consumer home economics, and agricultural occupations); and special education. Eventually, additional subject areas were created and classification descriptions were designed to represent all the courses depicted within the course catalogs of the selected school systems. However, both project staff and state personnel initially channeled a significant proportion of their effort into these eight subject areas.

Concentrating on the selected subject areas (English/language arts, mathematics, science, social studies, business/office occupations, agricultural occupations, vocational and home economics, and special education), an initial system was developed that was then reviewed, revised, and altered iteratively throughout the duration of the project. Over a period of 4 months, before each scheduled site visit, personnel in each participating state received descriptions of the project, the classification system, and drafts of the course descriptions for review and assistance.(2)(5) For each base state, site visits to both state and local education agencies served several purposes: to share results of crosswalk activities, to check the accuracy of decisions made by project staff, and to review the proposed classification framework for overall concerns and local anomalies. In several states, local staff filled out course matrices (provided before the site visit). The difficulties encountered and concerns raised while attempting that task provided the material for extensive interviews with local curriculum experts in each subject area. The concerns and difficulties of state and local personnel led to modifications, additions, and deletions to the classification system. The site visits provided project staff with an opportunity to receive additional, more detailed information, and after each site visit, they expanded and refined the framework.(3)(6)

Personnel in the test states received slightly different instructions. For example, in Virginia, which has a centralized state course coding system, state personnel received the proposed classification system as developed at that stage, along with a request to develop a crosswalk between Virginia's courses and those described in the system. In South Dakota, because secondary education is fairly decentralized, it was the local school district personnel who received that information and request.

Guidelines Followed During System Development

This process was based on the idea that courses themselves could be singularly described with some amount of specificity. In many cases, this perception held true. However, in attempting to develop a system that: 1) contained course descriptions, yet did not include more than a few hundred courses; and 2) retained some of the practices still used by many school systems (for example, ability-level tracking), some limits were placed on the courses and descriptions. Thus, the classification system does not account for many distinctions that may be important to education personnel, curriculum specialists, education psychologists, or subject matter experts. (Examples of these distinctions may become evident when attempting to place a school's courses into the system.) Even though the course description may be generally appropriate, it may not contain enough detail to capture what makes *Course P* in School ABC different from *Course P* in School XYZ. The difference may be due to the textbooks used or the resources of the school or community. In similar fashion, even though a school district may dictate which textbooks students read and what topics teachers must cover within all *Course P* classes, these guidelines or dictates do not erase all variation. The instructional strategy, the education or experience of the teacher, the use of additional materials, and the dynamics of the students within the classes all create differences between each classroom. Factors that make courses *different*, despite attempts to indicate and specify content, intended level, and some further distinctions, will make descriptions-and therefore comparisons-across states, districts, and schools and even within school buildings imprecise.

Developing this course taxonomy required that a set of broad categories be devised within which course descriptions could be located. These categories were developed based on the various types of subject matter covered within secondary courses and were called *subject areas*. The organizational structures and

divisions used by each of the 11 school districts that were studied influenced the number and nature of the devised subject areas. A sense of the overall purpose and topical content of a course, in addition to the divisions used by the school districts, affected the placement of each described course into a subject area category. Because each subject area has its own particular subject fields, intended to provide more detail regarding the courses within that subject area, these subject area divisions affect how each course is more thoroughly described.

In general, subject area categories that contain academic courses correspond roughly to the academic departments one might see at a conventional high school. There are, however, some exceptions. Journalism and media courses make up the Mass Communication subject area, separate from other English Language and Literature courses. In addition, personal health and safety courses form a separate subject area (as opposed to being part of the physical education or science subject areas). In the proposed taxonomy, the following subject areas (listed alphabetically) contain the vast majority of the academic courses: Elective Activities; English Language and Literature; Fine and Performing Arts; Foreign Language and Literature; Health and Safety Education; Life and Physical Sciences; Mass Communication; Mathematics; Military Science; Multi/Interdisciplinary Studies; Physical Education; Religious Education and Theology; Social Sciences and History; and Special/Exceptional Education.

As with the traditional academic course offerings, the manner in which the studied districts categorized and divided the vocational education offerings affected how the subject areas used for vocational courses were constructed and divided. Nevertheless, it must be acknowledged that dividing occupational and vocational preparation courses into categories is somewhat arbitrary because the vocational education programs administered by states, districts, and schools vary widely in the breadth, depth, and objectives of the courses they offer. These differences in course offerings and vocational program objectives affect the organization of those courses within various education systems. Thus, a school may have an entire Agricultural Science and Technology Division, with several dozen courses creating a variety of program choices, or it may have a single program of Agricultural Occupations, located within a larger Occupational Education Department. Business Education and Office Occupations may be two separate divisions, or may be combined. Technology Education, Industrial Education, Trade and Industrial Education, and Industrial Technology are examples of the divisions created by individual education agencies; however, the placement of particular courses in each of these divisions varied among school districts. Recognizing that some of these divisions are due to the objectives of the vocational course (for example, preparation for entry-level positions versus general education in a vocational subject), subject fields were created to indicate the nature and general purpose of the course.

Structure and Use of the System

The course system contains 632 courses in 29 subject areas. Every course in the system has a title, a description, and a basic course title code. In addition, the system provides a procedure for including more detailed information along with the basic classification title code through the use of seven additional fields. The first four of these additional fields are termed *common fields*. For each course, the common fields have identical definitions and codes, providing the same type of information for every course in the system: an indication of the level of the course, the amount of credit available, and the sequencing of the course. The latter three fields provide additional information regarding experiences available within the course, the type of credit received, the main emphasis, or additional detail regarding course content. These three fields usually change according to the specific subject area, and are therefore termed *subject fields*.

EXAMPLE: ACCOUNTING 1B

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
02	07	1	0.50	2	1	2	5	1

Using the classification system as proposed, a course offered in a school system would be described by a 13-digit numeric code. The course would receive a basic 4-digit classification title code according to whichever classification description fit most closely. The first 2 digits of this classification title code correspond to the subject area; the second 2 digits correspond to a particular course title within that subject area. The level of the course can be represented by a 1-digit number; credit by a 3-digit number taken to 2 decimal places; and sequence by two 1-digit numbers (one for term, one for year). The subject fields contain a total of 3 digits. The following sections describe the elements and the coding options of the classification system in greater detail, using a few sample courses from the participating school systems to illustrate how to apply the classification system to actual courses.

Classification Course Title, Description, and Number

Pivotal to the proposed classification system are the *course titles* and associated descriptions. Every course that purports to convey similar lessons and provide students with the opportunity to achieve similar outcomes has a *classification title*. The courses offered within individual schools may or may not have the same name as the classification title. The classification system proposes a common name that seeks to communicate the theme of the course. Tied to that classification title is a description developed based on the districts surveyed and studied. The classification descriptions are specific enough to indicate what is being taught, but the intent is to describe, not dictate, what topics and skills teachers may cover within a particular course. Proper application of the classification system depends on the use of the course descriptions, not the classification titles, to identify the appropriate codes for a school system's courses. For example, Life Skills, Self Management, and Personal Development are three courses within the Consumer and Homemaking Education subject area. However, without the associated course descriptions, they might seem to describe the same course. Although these courses do convey related types of information, they are three distinct courses with different descriptions, and appropriate coding depends upon reading the associated descriptions. Lastly, because one intention of the classification scheme is to provide a system by which school personnel may electronically share certain data, each course title-and linked description-has an associated code number.

EXAMPLE: ACCOUNTING 1B

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
02	07	1	0.50	2	1	2	5	1

The first 2 digits of the course classification code field refer to 1 of the 29 subject areas within the classification system; the 3rd and 4th digits correspond to a particular course title within the specified subject area. In the above example, 02 identifies this course as belonging to the *Business* subject area; 07 corresponds to the *Accounting* course classification title. Listed below are the classification system subject area codes and corresponding names. Subject area codes were assigned to each subject area based on the alphabetic order of the subject area names. Chapter 2 provides a full listing of course titles and descriptions for each subject area; Appendix A lists the individual course codes and classification titles (without their associated descriptions) in numeric and alphabetic order.

Table 1 - Classification subject area codes and names

Subject area code	Subject area name
01	Agriculture and Renewable Natural Resources
02	Business
03	Computer and Information Sciences
04	Construction Trades
05	Consumer and Homemaking Education
06	Cosmetology
07	Drafting
08	Elective Activities
09	Energy, Power, and Transportation Technologies
10	English Language and Literature
11	Fine and Performing Arts
12	Foreign Language and Literature
13	Graphic and Printing Communication
14	Health and Safety Education
15	Health Care Sciences
16	Industrial/Technology Education
17	Life and Physical Sciences
18	Marketing
19	Mass Communication
20	Mathematics
21	Military Science
22	Multi/Interdisciplinary Studies
23	Physical Education
24	Precision Metalwork
25	Public, Protective, and Social Services
26	Religious Education and Theology
27	Social Sciences and History
28	Special/Exceptional Education
29	Vocational Home Economics

While developing the classification system, an attempt was made to reflect current trends in education and to accommodate anticipated courses or styles of instruction that would have an impact on course classification. One trend mentioned by personnel at almost every site was academic integration. Overall, academic integration includes at least three types of phenomena: integration within a subject area, integration between or across academic subjects, and integration between academic and vocational subjects. Mathematics and the science disciplines, in particular, are present foci for integration within subject areas, or *vertical integration*. Ideas for new ways of thinking about the connections within the math and science subject areas, as well as new instructional methods, are espoused by the National Science Teachers Association, the American Association for the Advancement of Science, the National Council of Teachers of Mathematics, and several other organizations.(4)(7) Some districts and schools have designed and implemented new courses, while others are still in the formulation stages. This classification system includes classification titles and descriptions for these integrated math and science courses, as well as several other integrated courses that combine two or more subject areas.

Integration has also occurred, albeit slowly, between academic and vocational courses in the attempt to bridge the traditional gap between "abstract and theoretical" academic education and "hands-on" vocational education. Here again, the integration may take a number of different forms. A few education agencies have constructed classes by merging traditional courses. One such course is Food Science, which combines concepts from both science and food service courses. In this course, students learn and practice cooking techniques, but they also gain an understanding of the chemical reactions taking place when bread rises or food spoils. In addition, integration of vocational and academic subjects might occur within individual courses. For example, a teacher may include vocational applications regularly in an academic class, using examples from particular occupations to illustrate an application of the concept or principle being studied. Integration in the opposite direction may also occur, with academic lessons included as an explicit part of vocational courses, wherein the teacher takes a greater amount of time to convey specific mathematical, scientific, or communication concepts related to the vocational content of the course. Related to this latter type of integration, some schools have designed particular courses (separate from the vocational courses but to be taken in conjunction with them) that impart the mathematical, scientific, or language arts concepts and skills specific to and useful for particular occupations or vocations. The classification system supports integrated academic and vocational courses through the creation of course titles and descriptions, as well as integrated experiences through the use of one of the vocational subject fields.

Impact of Differing Vocational Systems on Course Design and Description

States, districts, and schools differ with respect to how they organize their educational offerings, particularly their vocational education programs. Whereas many education systems organize their vocational coursework around an occupation or industry, others organize courses around particular skills. For example, some schools offer a series of courses entitled *Office Occupations 1, 2,* and *3* in which students learn a variety of skills associated with working in an business office: word processing, office machinery, recordkeeping, accounting, and so on. Distinctions among courses within the series appear to be distinctions of degree. As students advance through the courses included in the program, their skills and knowledge concerning the range of material within the program expand. In addition, students in the more advanced courses work more independently, have more responsibility for safety, or are expected to create more sophisticated products than those in the beginning courses.

In contrast, other schools offer courses that cover very specific topical areas related to an occupation. These courses differ in kind as well as in level of detail or degree.(5)(8) Again using examples from Business, these schools might offer individual courses entitled Word Processing, Office Machines, Recordkeeping, Accounting, Shorthand, and Business Management. Students choose their courses from

these offerings, combining them to create a particular emphasis in the business field. In the former system, a vocational concentration in the business field might be gained by taking all three of the Office Occupations courses; in the latter system, a concentration might be accomplished by completing four credits using any combination of the offerings.

This classification system accommodates this variation by describing both comprehensive courses, which are usually (but not always) taught as a series of courses, as well as specific topical courses. In addition, several of the vocational subject areas provide a course title, number, and general description for courses that treat particular topics, which are not otherwise described in the subject area course offerings, in depth. This additional course title and description enables topic-specific or specialty courses to be associated with their related general subject area (carpentry, electronics, auto mechanics, and so on), but does not provide detailed information concerning course content. For example, the most appropriate course code for Greeley Central High School's *Finish Carpentry* course would be the course code for *Particular Topics in Carpentry*, because Greeley's course concentrates on a specific aspect of carpentry not covered within the other course descriptions.

Common Fields

As mentioned above, the classification's course descriptions convey the general content of the courses being offered. However, this classification system was designed to provide more information and greater detail than was contained in previous taxonomies via the designation of additional "common fields". Some of the additional information indicated under "common fields" is applicable to almost every course: for example, the general level of the course; how much credit schools award to a student upon completing the course; and where the course is located if it is part of a sequence of similar, or consecutive courses represented by the same classification description.

Level

EXAMPLE: ACCOUNTING 1B

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
02	07	1	0.50	2	1	2	5	1

Table 2 - Classification codes and meanings for the *level* field

Level field codes	Code meanings
0	Information not collected, unavailable, or missing.
1	Remedial A course offered for the improvement of any particular deficiency, including a deficiency in content previously taught

	but not learned.
2	Special Education A course that adapts the curriculum, materials, or instruction for students identified as needing special education. This may include instruction for students with any of the following: autism, deaf-blindness, hearing impairment, mental retardation, multiple disabilities, orthopedic impairment, serious emotional disturbance, specific learning disability, speech or language impairment, traumatic brain injury, visual impairment, and other health impairments.
3	Basic A course focusing primarily on skills development, including literacy in language, mathematics, life and physical sciences, and social sciences and history.
4	General A course providing instruction (in a given subject matter area) that focuses primarily on general concepts for the appropriate grade level.
5	Honors An advanced level course designed for students who have earned honors status according to educational requirements.
6	Gifted and talented An advanced level course designed primarily for elementary students who have qualified for and enrolled in a school, education institution, or district gifted and talented program.
7	Untracked A course that is not limited to one level of instruction so as to meet the needs of student groups at a variety of educational levels.
8	Limited English/bilingual A course designed for students with a language background other than English, and whose proficiency in English is such that the probability of the individual's success in an English-only environment is below that of a successful peer with an English language background.
9	Accepted as high school equivalent A course offered at an education institution other than a secondary school (such as a junior high school or community college) of through correspondence or satellite media.

Particularly useful for academic courses, but germane to vocational courses as well, the first of the common fields indicates the *level* of the course, or whether the course is intended for a particular population or type of student. Many schools and school systems throughout the United States place students in, or allow students to choose from, different "tracks" of courses. These tracks may reflect the different levels of commitment, effort, and energy required of the students enrolled; the amount of writing demanded; the level of discourse expected within class discussions; the difficulty of the texts used; and so on. Some schools or school districts have tracks that remain in place throughout several departments; others have tracks only in one or two departments. On the other hand, some schools have made great efforts to abandon their tracking

systems, moving toward heterogeneous courses and emphasizing cooperative learning and teaching strategies.

In addition, some schools and school districts offer courses to special populations of students. Commonly, the student must meet some selection criteria to become a member of the particular population. The course content and objectives will still match a classification description, but the designated population, usually by its very nature, will affect the instructional methods or level of the course.

Although the classification system provides options for school personnel to indicate the levels of the courses they offer, the system does not specifically define or even fully describe those options. Level, as a field, provides more information and conveys important distinctions among courses than in previous taxonomies, but this field cannot be concretely described because of the variety of criteria the schools themselves use to categorize courses. Education agencies (whether state, local, or school-based) usually design basic- and honors-level courses relative to the regular-level courses. Instructors typically teach basic courses at a level that enables students who have performed poorly in the past, who might have trouble in a regular-level course, or who need review, extra assistance, or additional time to succeed. Instructors typically teach honors courses on a higher level than regular courses, and typically demand extra effort, more work, and an advanced level of analysis, thought, or performance.

Although the regular curriculum affects the design of the basic- and honors-level courses, the level of the regular curriculum cannot be accurately specified. The objectives of and the expected effort within the courses designated as regular vary from school to school (or district to district). Users of the system must keep this caveat in mind. Similarly, education agencies do not have a uniform definition of academically disadvantaged, the same prerequisites for membership in a gifted and talented program, or identical criteria for identifying limited English speakers. Therefore, the level of these courses may differ somewhat from place to place.

The *level* field, as with all of the classification system's fields, is primarily designed and intended to describe courses. Students who have failed a basic proficiency test may be in a regular or even an honors course. Depending upon a school's bilingual education program, not all students enrolled in a course designated with a "6" need to be limited in their English proficiency.

Credit

EXAMPLE: ACCOUNTING 1B

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
02	07	1	0.50	2	1	2	5	1

The second of the common fields indicates the amount of *credit* available to students upon successful completion of the course, expressed as Carnegie units. A course that meets every day for one period over the entire school year typically offers one Carnegie unit; therefore, this field also serves as a proxy for the amount of time students spend in a particular course. Because the duration of class periods and school years vary, the approximate "seat time" expressed by a Carnegie unit differs slightly among districts and states. However,

the unit still provides an important indication of what might be expected from students who have successfully completed the course. Courses with matching course descriptions but carrying varied amounts of credit probably cover different portions of the described course content, or cover course topics in varying levels of detail. In the example above, Accounting 1B offers one-half credit upon successful completion. Schools and school systems using a credit system other than Carnegie units might transform their credits into Carnegie units as they code their courses. Again, a course that meets every day for one period over the entire school year offers one Carnegie unit. If a course meets three times per week for one class period over the school year, it would receive 0.6 Carnegie units of credit (students meet three-fifths the typical amount of time, and so receive three-fifths the amount of credit).(6)(9)

Table 3 - Classification codes and meanings for the *credit* field

Credit field codes	Code meanings
0.25	One-quarter credit *Typical* amount of credit awarded for a 9-week course meeting 1 hour each school day.
0.50	One-half credit *Typical* amount of credit awarded for a term course lasting 1 semester and meeting 1 hour each school day.
1.00	One full credit *Typical* amount of credit awarded for a year-long course meeting 1 hour each school day.
1.50	One and one-half credit *Typical* amount of credit awarded for a semester-long course meeting 3 hours each school day; this credit amount is most frequently used for vocational courses.
2.00	Two full credits *Typical* amount of credit awarded for a year-long course meeting 2 hours each school day; this credit amount is most frequently used for vocational courses or for integrated courses.
3.00	Three full credits *Typical* amount of credit awarded for a year-long course meeting 3 hours each school day; this credit amount is most frequently used for vocational courses.
9.99	Course does not offer credit upon completion.

NOTE: This list of options is not exhaustive; some school districts offer courses with different credit amounts than those shown above. This list shows the most common credit amounts offered by the participating school districts. Additionally, the length of a course (weeks and school days) can vary greatly among schools.

Another trend discovered during site visits is the rising interest in performance- or competency-based curriculum and education. Educators and administrators across the country are reconsidering how students learn, how curriculum is organized, how schools are presently structured, and how schools might be restructured to facilitate greater achievement. Staff in several of the participating states (Maryland, Virginia,

and Colorado, in particular) discussed their states' movement toward a new vision of education, focusing on education that would be "learner centered" and "results oriented." Virginia's written draft of its *Common Core of Learning* offers the following characteristics of outcome-based education:

1) What a pupil is to learn is clearly identified;
2) Each pupil's progress is based on the pupil's demonstrated achievement of outcomes;
3) Each pupil's needs are accommodated through multiple instructional strategies and assessment tools; and
4) Each pupil is provided time and assistance to realize her or his potential.(7)(10)

This document identifies the types of people that the state of Virginia expects graduates of the secondary education system to be: healthy, fulfilled individuals; caring, supportive people; collaborative, self-directed learners; reflective, expressive contributors; adaptable, quality producers; informed, involved citizens; and concerned, responsible stewards. In addition, Virginia's document provides 39 "enabling" competencies and associated benchmarks designed to record students' progress toward these goals.

Several other states and districts (project participants as well as non-participants) have formulated vision statements or guidelines outlining the desired outcomes. However, most acknowledge that it will be up to the administrators and teachers in local schools to translate the vision into curriculum, instruction, learning, and student performance. A number of people see the move toward performance-based curriculum as a move away from credit in a course as a measure of student performance and knowledge. For some districts, performance-based learning may translate into a checklist of competencies that a student must acquire, in any manner he or she chooses, before graduation from high school. If, in fact, performance- and competency-based education continues to gain acceptance, the *credit* field as presently envisioned-and perhaps even the entire idea of a classification system using courses as its base-may become deemphasized in some locations.

Sequence

EXAMPLE: ACCOUNTING 1B

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
02	07	1	0.50	2	1	2	5	1

Table 4a - Classification codes and meanings for the *sequence (Term)* field

Sequence field codes	Code meanings
Term	
0	The course is not part of a multi-term sequence of courses stretching through the year(s).

1	First term in a multi-term sequence of courses.
2	Second term in a multi-term sequence of courses.
3	Third term in a multi-term sequence of courses.
	Codes of 4 and above might also be used, but would be unusual.

Table 4b - Classification codes and meanings for the *sequence (Year)* field

Sequence field codes	Code meanings
Year	
0	The course is not part of a multi-year sequence of courses.
1	First year of a multi-year sequence of courses.
2	Second year of a multi-year sequence of courses.
3	Third year of a multi-year sequence of courses.
4	Fourth year of a multi-year sequence of courses.
5	Fifth year of a multi-year sequence of courses.
	The use of codes greater than "4" is an unusual, but not invalid, choice. This option may be necessary when courses are part of a multi-year sequence of courses that begins before high school. Such sequential offerings may be found within the foreign languages, where the first year of a foreign language may be offered in eighth grade. They may also occur for other courses as well.

The last two of the common fields indicate the sequential nature of the course. The first of the sequence fields denotes *term*; the second, *year*. School districts operating on a semester or trimester basis, offering two (or three) consecutive courses fitting one classification description that make up a "complete" course, will frequently use this field. In the Accounting 1B example presented at the beginning of this section, the sequence codes indicate that this course is the second term, first-year course of a multi-year sequence of accounting courses. As another example, *World History A,* offered during the fall term, and *World History B,* offered in the spring and building upon or continuing the lessons of the first term, would be coded "1" and "2," respectively, in the term field. Even those courses that do not necessarily require consecutive terms, but still follow one another-perhaps with one as a prerequisite of the other-would use this field to denote their sequential nature. Similarly, individual courses that are part of a multi-year sequence, such as foreign language or dance courses, would use the second of these two fields to indicate in which year of the sequence the course belongs.

In combination, these two fields enable schools to code their courses as offered at the school, keeping intact the term and year divisions of the courses as taught. This capability is particularly useful for vocational courses when they are sequential and create, in combination, a vocational program. Many schools offer, for example, a program of Auto Mechanics, broken up into a number of courses that offer students progressively more complex, advanced instruction. Yet, the general classification description with the title *Auto Mechanics-Comprehensive* adequately describes all the courses within the program. Particularly in

combination with the credit field, the sequence fields provide a clue as to how much a student might realistically be expected to know.

Subject Fields

In addition to the four common fields and the classification title, the classification system uses three *subject fields* that provide additional information regarding the intended experiences available to students enrolled, the main emphasis of the course, the type of credit received upon successful completion, and detail regarding the content of the course. Subject fields were designed to retain distinctions among courses that fit a single classification description, or to convey pertinent information that was not included in the descriptions. The following sections provide a general overview and examples of the subject fields for both ***vocational*** and ***academic*** courses.

Vocational Subject Fields

EXAMPLE: ACCOUNTING 1B

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
02	07	1	0.50	2	1	2	5	1

The three subject fields for all vocational courses are identically defined and coded. Subject field #1, entitled *Occupational Program*, can indicate whether the course is part of a larger sequence of courses that make up an approved vocational program as well as whether it is part of a tech-prep program. Subject field #2 in the vocational subject areas, *Applied Experience*, denotes the general type of applied experience that students receive during the course. Subject field #3, *Academic Integration*, portrays whether academic integration exists within the vocational course, specifying which of three academic subjects-math, science, communication, or a combination thereof-is explicitly taught within the course or in required "linked" courses. In the above example, the subject field codes of 251 for Accounting 1B identifies it as 1) part of an approved vocational program, 2) a course in which students practice the skills they are learning in on-campus laboratories or via classroom simulation, and 3) a course in which mathematic concepts and skills are explicitly taught within the course. The next three subsections present the options for these three subject fields and explain why they were selected.

Table 5 - Classification codes and meanings for the first vocational subject field: Occupational program

Codes	Code meanings
	(Indicates the programmatic nature of the course.)
0	Information not collected, unavailable, or missing.
1	This course is not (by itself or as part of a sequence of courses) designed

	to lead to entry-level positions or further specialized training in a particular occupation or set of occupations.
2	This course, by itself or in conjunction with others, is part of an approved vocational program designed to develop competencies required for specific career fields or continuing education.
3	This course is part of an articulated tech-prep program, designed to lead to an associate degree or certificate in a specific career field.

Occupational program. Many of the participating education systems have two types of vocational educational offerings. Some courses are part of vocational "programs," intending to lead students who complete these programs into entry-level positions within the specific vocational field. Other courses exist that offer vocational experience and information for students interested in the area, but who have aspirations other than to be employed within that vocational field. These other courses may provide an orientation to a cluster of occupations, or may provide an overview of the vocation, but are not designed to lead to entry-level positions or to additional postsecondary training in that field. The difference between these two types of courses is sometimes obvious, supported by differences in the teachers' training and in the organization of the vocational offerings. In other systems, the difference may be more obscure, or may not exist at all.

In addition, some vocational courses and programs are part of a tech-prep system or of articulation agreements between high schools and postsecondary institutions. The Perkins Act of 1990 authorized funding for planning and demonstration grants that would serve to link secondary and postsecondary education, and included definitions with regard to acceptable tech-prep programs. However, tech-prep and articulation between secondary and postsecondary institutions have existed for many years, and the legislation's definitions may go beyond some programs currently in existence.(8)(11) No matter the actual definition, the thrust behind most tech-prep programs is clear: secondary schools are cooperating and working with community colleges and other postsecondary institutions (as well as businesses that can provide apprenticeships) in order to smooth a student's transition from a high school vocational program to postsecondary vocational training or to gainful employment.

The articulation agreements recognize, for specified courses, the knowledge gained and the work completed during the students' high school careers. They provide continuity in learning, offer a planned sequence of courses that result in the necessary competencies required for a career or field of endeavor, and reduce duplication of learning experiences. Articulated agreements refer to specific courses or sequences of courses, and keeping track of which courses fulfill such an agreement has become more important. The proposed system will provide an indication of whether a course is part of an articulated tech-prep program. However, as useful as the information may be, the user is cautioned that different definitions of tech-prep programs exist.

Table 6 - Classification codes and meanings for the second vocational subject field: Applied experience

Codes	Code meanings
	(Indicates the nature of the applied experience.)
0	Information not collected, unavailable, or missing.

1	Students are required to work in an independent (public or private) business or organization in this occupation or field.
2	Students are given the opportunity to work in an independent (public or private) business or organization in this occupation or field, but are not required to do so.
3	Students are required to work in an occupationally related business or project under school supervision (for example, auto dealership, cosmetology shop, or a student-built house on or off campus).
4	Students have the opportunity to work in an occupationally related business or project under school supervision (for example, auto dealership, cosmetology shop, or a student-built house on or off campus), but are not required to do so.
5	Students practice skills in on-campus laboratories or via classroom simulation.

Applied experience. The type of applied experience that students receive within a vocational course depends upon a number of factors: whether or not the course is part of an occupational program, the type of occupation being studied, the resources of the school, and the level of the course. (One might expect advanced students to have different experiences than students just beginning their coursework.) The classification system proposes a series of options that provide a rough indication of the applied experience that students enrolled in the course will have. Study staff designed the options with a hierarchy in mind; the choice of option 3 does not preclude in-class simulations. However, that choice would indicate that *all* students in the course are *required* to work in a school-supervised business or project. If students can choose to work in the shop, and are encouraged but not required to do so, option 4 should be chosen instead.

This discussion includes one caveat. Because of the course coding systems used by school districts or perhaps the evolution of the courses, schools often offer cooperative education or work experience opportunities in one of two ways. Some schools enroll students in vocational coursework as well as in a separate cooperative or work experience course. Others combine the two into one course. The first two options of the *Applied Experience* subject field are intended predominantly for those vocational courses offered by school systems in which cooperative education is embedded in the coursework. Those schools that offer cooperative or work experience as a separate course should use the course titles and codes that pertain to cooperative and on-the-job experience; each vocational subject area contains these types of courses. Again, this system describes the nature of each individual course, not the general experience of students who enroll in the course.

Table 7 - Classification codes and meanings for the third vocational subject field: Academic integration

Codes	Code meanings
	(Indicates which of the following subject area concepts/skills are explicitly taught within the course or in required linked courses.)
0	Information not collected, unavailable, or missing.
1	Mathematics

2	Life and Physical Sciences
3	English Language and Literature
4	Mathematics and Life and Physical Sciences
5	Mathematics and English Language and Literature
6	Life and Physical Sciences and English Language and Literature
7	Mathematics, Life and Physical Sciences, and English Language and Literature
8	Separate, required course covering mathematics topics related to occupation
9	Separate, required course covering science topics related to occupation

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Academic Integration. As noted throughout this report, subject matter integration has taken on a number of forms, and applies not only within academic courses but also between academic and vocational courses. Instructors may include academic lessons as an explicit part of vocational courses, wherein the teachers take more time to convey specific mathematical, scientific, or communication concepts and strategies related to the vocational content of the course. The Perkins Act of 1990 places an increased emphasis on including academic competencies within vocational courses, an emphasis that may or may not be reflected in the expectations and objectives of individual courses. In addition to schools that embed academic lessons within their vocational courses, some schools have designed particular courses (separate from the vocational courses, but to be taken in conjunction with them) that impart the mathematical, scientific, or language arts concepts and skills specific to and useful for particular occupations or vocations. The third vocational subject field, *Academic Integration*, provides the means for specifying the type of academic competencies that instructors explicitly teach and emphasize within each course.

Academic Subject Fields

Unlike the vocational subject areas, which share three identical subject fields to further describe the courses contained within them, each of the 14 academic subject areas has its own unique set of subject fields (see Table 17). For example, in Example 1, Example 2, and Example 3 presented below, the codes within the subject fields are identical; however, the numbers convey different pieces of information regarding the particular courses, because the subject fields of each subject area have a different definition.

EXAMPLE 1: U.S. HISTORY - COMPREHENSIVE

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
27	21	2	1.00	0	0	1	2	2

The common codes of this course example, U.S. History-Comprehensive, indicates the following characteristics:

Within the Social Sciences and History subject area,	(subject area=27)
it fits the description of the classification title U.S. History-Comprehensive,	(course title=21 within subject area #27)
is taught at a basic level, and	(level=2)
awards one Carnegie unit of credit.	(credit=1.00)

The 122 code in the subject fields further indicates that the course fulfills a primary social studies graduation requirement; requires students to write monthly; and does not require students to use primary source materials frequently. In the Social Sciences and History subject area, the three subject fields correspond to Type of Credit, Frequency of Writing, and Primary Sources (whereas in all the vocational subject areas, the three fields correspond to Occupational Program, Applied Experience, and Academic Integration). This particular sequence of subject fields is unique to the Social Sciences and History subject area. The codes and meanings are provided below.

Table 8 - Classification codes and meanings for the first subject field in Social Sciences and History: Type of credit

Codes	Code meanings
	(If the school, district or state requires certain types of credit for high school graduation, indicates the type of credit that students receive upon completing the course.)
0	Information not collected, unavailable, or missing.
1	Primary Social Studies credit (Often, graduation requirements include specific types of social studies credit, such as World History, U.S. History, Government, Economics, and so on. This option signifies fulfillment of one of these specific social studies credit requirements.)
2	Secondary Social Studies credit (In addition to specific types of social studies credits, several school systems require additional coursework to fulfill graduation requirements. This option signifies fulfillment of one of these general or elective social studies credit requirements.)
3	Fine Arts/Humanities credit
4	Vocational credit
5	Dual credit (in Social Studies and another subject area)
6	Student choice (Student may choose between two or more types of non-elective credit to be received upon successful completion of the course)
7	Other type of credit
8	Elective credit

Table 9 - Classification codes and meanings for the second subject field in Social Sciences and History: Frequency of writing

Codes	Code meanings
	(Indicates, on average, how frequently students are required to write in this course.)
0	Information not collected, unavailable, or missing.
1	Less frequently than once per month
2	Approximately once a month
3	About every 2 weeks
4	Weekly
5	Daily

Table 10 - Classification codes and meanings for the third subject field in Social Sciences and History: Primary sources

Codes	Code meanings
	(Indicates whether students work frequently-at least once per month-with primary source materials.)
0	Information not collected, unavailable, or missing.
1	Students work frequently with primary source materials.
2	Students do not work frequently with primary source materials (although some assignments may include using them).

EXAMPLE 2: DRAMA/STAGECRAFT - COMPREHENSIVE

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	yr	#1	#2	#3
11	12	1	1.00	0	1	1	2	2

The coding of this example course, Drama/Stagecraft-Comprehensive, indicates the following:

Within Fine and Performing Arts subject area,	(subject area=11)
it fits the description of the classification title Drama/Stagecraft-Comprehensive,	(course title=12 within subject area #11)
is taught to a heterogeneous mix of students,	(level=1)
awards one Carnegie unit of credit, and	(credit=1.00)
is the first-year course in a multi-year sequence of Drama/Stagecraft courses.	(sequence=01)

The 122 code in the subject fields further indicates that the course fulfills an Arts/Humanities graduation requirement; does not require auditions for entry; and emphasizes public performance. In the Fine and Performing Arts, the three subject fields refer to Type of Credit, Auditions, and Primary Emphasis. As with the Social Sciences and History subject area and fields, this particular sequence of subject fields with their associated meanings is unique to the Fine and Performing Arts subject area. The codes and meanings for the Fine and Performing Arts subject area are provided below.

Table 11 - Classification codes and meanings for the first subject field in Fine and Performing Arts: Type of credit

Codes	Code meanings
	(If the school, state or district requires certain types of credit for high school graduation, indicates the type of credit that students receive upon completing the course.)
0	Information not collected, unavailable, or missing.
1	Fine Arts, Humanities, or Performing Arts credit
2	Physical Education credit
3	Primary English credit (If schools/districts have several types of required English credit, and the course fulfills a Literature/Writing credit, this option should be chosen. This option should also be chosen by schools/districts with only one type of English credit requirement.)
4	Secondary English credit
5	Vocational credit
6	Dual credit (in Social Studies and another subject area)
7	Student choice (Student may choose between two or more types of non-elective credit to be received upon successful completion of the course)
8	Other type of credit
9	Elective credit

Table 12 - Classification codes and meanings for the second subject field in Fine and Performing Arts: Auditions

Codes	Code meanings
	(Indicates whether auditions are required prior to enrollment in the course.)
0	Information not collected, unavailable, or missing.
1	Auditions are required.
2	Auditions are not required.

Table 13 - Classification codes and meanings for the third subject field in Fine and Performing Arts: Primary emphasis

Codes	Code meanings
	(Indicates the primary emphasis of the course.)
0	Information not collected, unavailable, or missing.
1	Skill, craftsmanship, or technique
2	Public performance/production (Students concentrate on technique, but may be required or strongly encouraged to participate in public performances or displays.)
3	Appreciation and/or evaluation of art form
4	History (and literature, if applicable) of art form(s)
5	Personal expression
6	Working as a group
7	Choreography/Composition
8	Combination
9	Other

EXAMPLE 3: PHYSICS IA

Classification Title		Common Fields				Subject Fields		
subject area	course title	level	credit	sequence term	sequence yr	#1	#2	#3
17	31	3	0.50	1	0	1	2	2

One last course example should sufficiently illustrate how the different subject areas dictate the meaning of the codes within the subject fields. In the example above-Physics IA-the coding of the common fields denotes the following:

Within the Life and Physical Sciences subject area,	(subject area=17)
it fits the description of the classification title Physics-First Year,	(course title=31 within subject area #17)
is taught at a regular level,	(level=3)
awards one-half Carnegie unit of credit, and	(credit=0.50)
is the first term in a multi-term sequence of Physics courses.	(sequence=10)

The 122 code in the subject fields indicates that a science graduation requirement will be fulfilled upon successful completion; the courses does not require laboratory experimentation; and basic

computational skills will be used. In the Life and Physical Sciences subject area, the three subject fields refer to Type of Credit, Lab Experience, and Level of Math. As with the other academic subject areas, this particular sequence of subject fields with their associated meanings is unique to the Life and Physical Sciences subject area. The subject field codes and meanings are provided in the following tables.

Table 14 - Classification codes and meanings for the first subject field in Life and Physical Sciences: Type of credit

Codes	Code meanings
	(If the district or state requires certain types of credit for high school graduation, indicates the type of credit that students receive upon completing the course.)
0	Information not collected, unavailable, or missing.
1	Science credit
2	Social Studies credit
3	Fine Arts/Humanities credit
4	Vocational credit
5	Dual credit (in Social Studies and another subject area)
6	Student choice (Student may choose between two or more types of non-elective credit to be received upon successful completion of the course)
7	Other type of credit
8	Elective credit

Table 15 - Classification codes and meanings for the second subject field in Life and Physical Sciences: Lab experience

Codes	Code meanings
	(Indicates the participatory, hands-on laboratory experience received by students. If possible, use the higher codes to indicate the frequency of laboratory experimentation.)
0	Information not collected, unavailable, or missing.
1	Regular laboratory experiments are integral to the course.
2	Laboratory experimentation is not required nor integral.
3	Less than 50 percent of the course is spent on laboratory experiments.
4	About 50 percent of the course is spent on laboratory experiments.
5	More than 50 percent of the course is spent on laboratory experiments.

Table 16 - Classification codes and meanings for the third subject field in Life and Physical Sciences:

Level of math

Codes	Code meanings
	(Indicates the level of math used within the course.)
0	Information not collected, unavailable, or missing.
1	No math
2	Basic computational skills (addition, subtraction, multiplication, division)
3	Algebraic skills or higher level math

As is evident from the three examples provided above, the specific subject fields for academic courses vary with each subject area. However, the fields generally convey three types of information. These types of information are: the type of credit awarded for the course, or whether the course fulfills a graduation requirement; information regarding course content; and the main emphasis of the course or to the intended student experience. Table 17 presents an overview of the type of information conveyed by the subject fields for each academic subject area. For more specific subject field codes and meanings, turn to the appropriate subject area in Chapter 2. The rest of this section contains a brief discussion of the academic subject fields.

Table 17 - Academic subject areas and type of information conveyed by their subject fields

Subject area	Subject field #1 *Type of Credit*	Subject field #2 *Content*	Subject field #3 *Focus/Emphasis*
Elective Activities	(blank)	(blank)	(blank)
English Language and Literature	Type of Credit	Writing Opportunity	Prose Mastery
Fine and Performing Arts	Type of Credit Auditions	Primary Emphasis	
Foreign Language and Literature	Type of Credit	(blank)	Language Attainment
Health and Safety Education	Graduation Requirement	Human Physiology	Human Sexuality
Life and Physical Sciences	Type of Credit	Lab Experience	Level of Math
Mass Communication	Type of Credit	Focus	Production
Mathematics	Type of Credit	Scope of Course	Calculator/ Computer Use
Military Science	Type of Credit	Branch of Service	(blank)

Multi/Inter-disciplinary Studies	Subject Studied	Subject Studied	Subject Studied
Physical Education	Type of Credit	Health Component	Human Sexuality
Religious Education and Theology	Type of Credit	Doctrine	Community Service
Social Sciences and History	Type of Credit	Frequency of Writing	Primary Sources
Special/Exceptional Education	(blank)	(blank)	Course Target

Type of credit. Several states do not require students to complete certain courses or types of courses before receiving their high school diploma; some states focus their graduation requirements on a few subject areas; and other states have a wide variety of course requirements that students must fulfill. However, because administrators and counselors in several states will use the system as a communication tool to transfer student records within and among school districts, the type of credit awarded upon successful course completion seems an important course characteristic to convey. Presumably, designating a course as one that fulfills a requirement, particularly when other courses offered within the same department do not, signifies that a certain type or level of information is being conveyed within the course. For example, some drama courses offer enough experience in reading literature and in writing compositions to fulfill an English requirement, whereas other drama courses do not, concentrating more on the performance aspects of the selected scripts.

Even granting that the criteria for graduation credit fulfillment will vary among states (that is, a journalism course meeting the requirements for language arts graduation credit in one state may not fulfill the language arts requirements of another), an understanding that a particular course is designed to provide knowledge deemed as crucial to graduation may affect how other states view that course. Within states where the state agency sets graduation requirements but where local agencies have control over course design, this field may take on greater importance. Students who have completed courses that meet the state's graduation requirements in one district will be able to easily transfer those credits to the receiving district. The eleven subject areas that have one subject field dedicated to information about credit fulfillment are the following: English Language and Literature; Fine and Performing Arts; Foreign Language and Literature; Health and Safety Education; Life and Physical Sciences; Mass Communication; Mathematics; Military Science; Physical Education; Religious Education and Theology; and Social Sciences and History. The system was constructed so that if a subject area has a field dedicated to credit fulfillment, it will always be the first subject field. As seen in the previous examples, the options for this subject field change with each subject area. However, as much as possible, codes for this field are as constant as possible across all academic subjects; for six of the subject areas using a Type of Credit field, codes 3 through 9 identify the same type of credit.(9)(12)

Content. Seven subject areas (Health and Safety Education; Mass Communication; Mathematics; Military Science; Multi/Interdisciplinary Studies; Physical Education; and Religious Education and Theology) use one or more subject fields to convey in more detail the specific content area covered in the course.(10)(13) For example, the description of Mass Media-Communication within the Mass Communication subject area reads:

Mass Media-Communication courses enable students to understand and critically evaluate the role of media in society. Course content typically includes investigation of visual images, printed material, and audio segments as tools of information, entertainment, and propaganda; improvement of presentation and evaluative skills in relation to mass media; recognition of various techniques for delivery of a particular message; and, in some cases, creation of a media product. The course may concentrate on a particular medium.

Although suggestive, the description does not specify what medium the students are examining. This omission is deliberate, because the description focuses on the knowledge students are intended to gain or on the skills they are expected to explore, irrespective of the medium. As a description of the course, the medium is secondary to the lessons that are being taught. However, this does not mean that the medium being explored is unimportant; thus, the subject field conveys that information.

Beyond supplying information that some of the descriptions leave out, these content-modifying subject fields also provide an additional measure of flexibility to the classification system. A state-level guideline or framework for the course may contain general lessons to be learned, regardless of form or medium, while local-level blueprints of the course may be more specific. If state-level personnel classify the course, they can choose the "general" option, placing a zero in the proper subject field; on the other hand, if local personnel classify the course, they can indicate the particular medium using the appropriate subject field. Such is the case, particularly, with courses in the Military Science subject area. For instance, states may have a general code for Reserve Officer Training Corps courses because local resources typically determine which branch of the military service serves as the focus, which in turn frequently determines the actual content of the course(s).

Content, as a subject field, is used in a slightly different manner for personal health and safety and physical education courses. Some health courses cover issues such as diet, mental health, and drug abuse prevention in a general fashion, whereas others cover these issues while concentrating to a greater extent on their human growth and physiology ramifications. Therefore, one subject field for health courses indicates whether the course includes the study of human growth and physiology. The other subject field in the Health and Safety Education subject area, repeated as a subject field in the Physical Education subject area, provides an indication of whether or not the course includes a component or unit on human sexuality. Although individual students may have to get a parent's permission to receive instruction during this unit, the field pertains to the course (as does the entire system) and provides an indication of the course objectives. For physical education courses, in addition to the one subject field that indicates inclusion of a sexuality component, another field provides information as to whether the course covers health topics along with the physical education training. Although the course classification system describes a combined Physical Education/Health course, there are undoubtedly some physical education courses that, while not providing equal emphasis on physical education and health education, still contain a health component or unit within the syllabus.

In mathematics, the range of topics covered in each classification course described varies considerably among states, districts, and even schools. For example, as a bridge between general mathematics and algebra, pre-algebra courses cover topics in both areas. Consequently, a pre-algebra course in State A may closely resemble a general mathematics course in State B, while a pre-algebra course in State C may closely resemble an Algebra I course in State A. One subject field in the Mathematics subject area provides an opportunity to indicate whether a course places significant emphasis on "review" topics that might be found in a lower level course or on "enhancement" topics that might be found in the next higher level course. With some exceptions, the mathematics course descriptions include lists of review and enhancement topics.

The Multi/Interdisciplinary subject area also uses subject fields to specify content. As mentioned in

a previous section, integration of subject matter is a strategy receiving greater attention nationwide. Although descriptions of several specific courses that integrate two subject areas exist within the course classification system (such as American Literature/History, Integrated Fine Arts, and Food Science), study staff interviewed educators who knew of or envisioned courses that integrated several disciplines. In these courses, students might approach a topic such as the environment or modern social problems, or a problem suggested by the students themselves from the perspective of various disciplines. However, the content of these courses may change frequently according to current events and students' interests. One can imagine interdisciplinary courses being offered on the Gulf War (bringing together history, political systems, communication and the media, and technology); on the presidential elections (combining geography, economics, mathematics, politics and political systems, and communication techniques); on the contributions of immigrants (drawing from language arts, science, history and the arts); and on a variety of other topics limited only by imagination and available resources (including time, energy, and expertise). The Multi/Interdisciplinary subject area offers models to describe the types of courses that schools may implement, and then uses the subject fields to indicate the three main disciplines from which the course draws its lessons and principles.

Focus/Emphasis. The last type of information conveyed by the various academic subject fields concerns the emphasis of the course or the intended experiences of those enrolled. Even more so than the content-related subject fields, these fields are quite subject specific. Two fields within the English Language and Literature, Life and Physical Sciences, and Social Sciences and History subject areas are dedicated to the intended experiences of the student. For the English Language and Literature and Social Sciences and History subject areas, one field indicates how often, on average, the instructors require students to write. In the English Language and Literature subject area, the other field indicates what level or kind of prose students are working to master, with the five available options ranging from "word recognition, comprehension, and usage" to "documented research papers and/or long critical analyses." For the Social Sciences and History subject area, the other subject field notes whether or not students frequently use primary sources. As presented earlier in this report, the Life and Physical Sciences subject area also has two subject fields dedicated to student experience. One field provides an indication of the emphasis given to hands-on laboratory experiments; the other indicates the level of math used in the coursework.

Four more subject areas contain subject fields conveying information regarding emphasis or intended experience. The third Mathematics subject field (after type of credit and a content-modifying field) indicates whether the course objectives place a strong emphasis on using a calculator or computer throughout the course. Secondly, subject field #3 in the Mass Communication subject area notes whether a product (or membership on a production staff) is required, encouraged, or not required. A subject field found in the Fine and Performing Arts subject area indicates whether enrollment in the course requires auditions. Lastly, the third subject field in the Religious Education and Theology subject area indicates whether the course requirements include community service.

State and Local Coding

This classification system is proposed as a framework that can be used to describe all secondary courses in the nation. How it is used and how specifically the courses will be described depends upon the users, the applications for which it is adopted, and how much information is available to those who apply the codes to the courses. Some users have no need for the level of detail that would be transmitted when using every field, whereas other users may find that information of vital importance.

Whether or not all fields are used will also depend upon the amount of information available to the personnel coding a school's or school district's courses. The information required to select appropriate codes for the subject area fields, course title fields, and common fields are likely to be available from course catalogs. Depending upon the specificity within catalogs, some of the subject fields (the last three fields) may

also be coded using the catalog descriptions. However, some of the subject fields require a deeper familiarity and understanding of the curriculum.

As stated at the outset of this manual, this system is intended to facilitate communication between schools, education agencies, enable questions of educational interest to be addressed in greater detail, and to provide a common methodology for researchers performing transcript studies. It is not intended to replace existing systems at the state or local level, only to provide the framework for a common terminology to assist in the communication process. It is hoped that education agencies will set up crosswalk tables, matching their present courses and coding systems to the courses and codes presented in this publication. In this manner, reports to the state, or the transmission of transcripts to other schools, districts and to postsecondary institutions will be able to take advantage of common terminology and understanding.

END NOTES

1 (Popup)
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Elementary/Secondary Education Statistics Division
555 New Jersey Avenue, NW
Washington, DC 20208-5651
Internet: ncesinfo@inet.ed.gov

2 (Popup)
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5 (Popup)
Appendix B provides a detailed list of the state, district, and local education agencies visited.

6 (Popup)
Where possible and available, information regarding the elementary curriculum was also collected.

7 (Popup)
See F. James Rutherford and Andrew Ahlgren, *Science for All Americans* (NY: Oxford University Press, 1990); National Council of Teachers of Mathematics, *Curriculum and Evaluation Standards for School Mathematics* (Reston, VA: NCTM, 1989); National Council of Teachers of Mathematics, *Curriculum and Evaluation Standards for School Mathematics: Addenda Series Grades 9-12: Connecting Mathematics* (Reston, VA: NCTM, 1991); and *Curriculum and Evaluation Standards for School Mathematics: Addenda Series Grades 9-12: A Core Curriculum* (Reston, VA: NCTM, 1992).

8 (Popup)
Presumably, the variation in the specificity of course topics is also related to local population density. In districts or schools that serve large student populations, economies of scale make affordable the expertise and equipment that are needed for a wider range of vocational education programs than small districts and schools can offer. Thus, it is generally the case that larger districts and schools are able to offer more specific programs of instruction: for example, rather than survey courses that teach some heating, ventilation, air conditioning, and refrigeration, a large district may be able to offer courses in particular aspects of commercial refrigeration.

9 (Popup)
In transforming non-Carnegie unit credit system into Carnegie units, the following formula may be used:
X Carnegie unit(s)=(p*d*w)/y, where
p=# of periods the class meets per day;
d= # of days the class meets per week;
w= # of weeks in the school year; and
y= # of days in the school year.

10 (Popup)
The Virginia *Common Core of Learning*
Draft, June 23, 1992.

11 (Popup)
From the Perkins Act, Title III, Part E, Section 347:
"The term 'tech-prep education program' means a combined secondary and postsecondary program which-
(A) leads to an associate degree or 2-year certificate;
(B) provides technical preparation in at least 1 field of engineering technology, applied science, mechanical, industrial, or practical art or trade, or agriculture, health, or business;
(C) builds student competence in mathematics, science, and communications (including through applied academics) through a sequential course of study; and
(D) leads to placement in employment."

12 (Popup)

The codes are as follows: 3=Social Studies; 4=Fine Arts/Humanities; 5=Vocational; 6=Dual credit; 7=Student choice; 8=Other type of credit; 9=Elective.

13 (Popup)
Subject fields that specify content are typically the second subject fields, the first being reserved for type of credit, if necessary. In a few cases, the first or third fields also convey content-related information.